

# PERSONAL EXPOSURE TO ULTRAFINE PARTICLES; BLACK CARBON AND PM<sub>2.5</sub> IN DIFFERENT MICROENVIRONMENTS

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**Background and Aims:** Exposure assessment studies have shown that air pollution measured by fixed monitors at residential locations may not adequately represent individual exposures, especially for times spent away from home. In the framework of an ongoing study combining individual and central monitoring site measurements we characterize personal exposures in specific micro-environments to particulate air pollutants from different sources.

**Methods:** During a three weeks period in February 2011, exposure data were collected by a single researcher equipped with personal monitors for continuous measurements of particle number concentration (PNC), black smoke (BS) and PM<sub>2.5</sub>. As pedestrian or passenger in public transportation he was taking the same route including major roads, urban background and industrial areas every day. His position was recorded by a GPS device.

**Results:** The overall average personal exposure to each pollutant was higher than the corresponding ambient levels (39 vs. 27  $\mu\text{g m}^{-3}$  PM<sub>2.5</sub>, 4.1 vs. 2.8  $\mu\text{g m}^{-3}$  for BS and 21375 vs. 12497  $\text{cm}^{-3}$  for PNC). Whereas personal exposure to PM<sub>2.5</sub> during his walks along busy streets and in a residential area was very similar (41.5 vs. 41.1  $\mu\text{g m}^{-3}$ ), there were very pronounced differences regarding PNC or BS (35656 vs. 15369  $\text{cm}^{-3}$  or 5.7 vs. 3.3  $\mu\text{g m}^{-3}$ , respectively). Times spent in the bus highly contributed to elevated personal BS levels. As the measurements are planned for winter, spring and summer weather conditions, the study is still ongoing. At the conference results for all three periods will be shown.

**Conclusions:** The obtained results provide insight into the potential air pollution levels to which people could be exposed and will be used in planned analyses in addition to data from the fixed monitoring station in order to get more reliable estimates concerning people's total exposure to UFP, BS and PM<sub>2.5</sub>, especially when being in traffic or in a near-road environment.